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REMARKS

The Office Action of January 6, 2004, has been carefully considered.

Applicants note that the priority documents for this application will be filed in due course.

Objection has been raised to the Abstract, and a new Abstract has been added to the application.

In addition, objection has been raised to the specification on a number of points, and the specification has been amended to correct the problems cited in the Office action.

Claims 2, 5 and 8 have been objected to on the basis of the term "strongly" and the claims have now been amended to change "strongly" to "strong."

Claims 1 through 14 and 29 through 54 have been rejected under 35 USC 112, second paragraph, on a number of grounds. Applicants have now rewritten Claim 1 as new Claim 55, and have amended the other claims in order to correct the problems noted in the Office action. Withdrawal of this rejection is requested.

Claims 1 through 13, 29 and 35-36 have been rejected under 35 USC 103 over Colombier et al in combination with Hansson.

Colombier et al disclose a process for plating an aluminum wire using a tank separated into three compartments, all of which contain baths of identical composition. One end compartment is provided with a negative electrode and the other end compartment is provided with a positive electrode, the conductor passing through the three compartments during the plating process.

The Office action alleges that the first end compartment is for pre-treating and the second end compartment is for nickel plating, and then alleges that the "pre-treating step makes the contact properties of said conductor sufficient to

enable mechanical electrical contact." This concept cannot be inferred from Colombier et al. In fact, Colombier et al does not mention this possibility and the composition of the bath in Colombier et al differs from that of the present application.

The Office action further asserts that the "pre-treatment comprises a pre-nickel plating step to coat the aluminum conductor with a primary nickel deposit," and alleges that the nickel plating step of Colombier et al is actually a pre-nickel-plating step. However, the cited text of Colombier et al at col. 3, lines 39-58 does not indicate that there is a primary nickel deposit in the activation step (in which the polarity would be wrong for nickel plating) and if the nickel plating step of Colombier et al is deemed correspond to the pre-nickel plating of the claimed invention, then there is no nickel-plating step in Colombier et al which corresponds to the nickel plating of the claimed invention.

Hansson discloses a device for coating an aluminum conductor comprising several baths and rollers to guide the conductor and provide electrical contact thereon during the treatment. It is alleged that one of ordinary skill in the art would have been motivated to modify the process of Colombier et al so as to include a mechanical electrical contact on the part of the conductor coming out of the pre-treatment step. Applicants disagree, since neither Colombier et al nor Hansson teach that the electrical contact properties of the conductor must be improved by a pre-treatment step.

Moreover, while Hansson discloses rolling contacts, Hansson also discloses a pre-treatment step which takes place in bath 13 which is not an electrolytic treatment. In that regard, new Claim 55 specifically recites both the electrolytic nature of the pre-treating step and the desired result of improving the contact properties. Thus, the conductor is initially passed through a pre-treating bath in

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which is disposed an electrode connected to a first current source and a first voltage for supplying to the aluminum conductor a pre-treatment current. The pre-treated aluminum conductor is then electrolytically plated with nickel in a plating bath in which is disposed an anode connected to a second current source at a second voltage, in which a nickel coat is deposited on the conductor by action of a nickel plating current. At least the nickel plating current is transmitted to the conductor through a mechanical electrical contact which contacts the conductor between the pre-treating bath and the plating bath.

Even if the activating treatment of Colombier et al were deemed to be a pre-treating according to the claimed invention, there is no motivation provided by these references of placing a mechanical electrical contact between the activation bath and the plating bath of Colombier et al, for transmitting at least a nickel plating current to the conductor; logically, the activation step of Colombier et al is electrolytic, so it makes more sense to retain the electrode in the activation bath, as taught by Colombier et al, to complete the circuit. Moreover, it is not clear how one would seek to add the rolling contact of Hansson to an arrangement such as that shown in Colombier et al, without any specific teaching of an advantage for doing so.

Applicants have discovered that, unexpectedly, due to the pre-treatment operation, it is possible to use mechanical contacts on very small diameter conductors and transmit the entire nickel plating current into the conductors through these contacts. While Hansson does obtain high current density, this is due to the composition of the bath (column 3, lines 33-37) and there is no indication whatever that the electrical contact properties of the conductor have been improved in order to increase the current density.

Accordingly, only Applicants teach the advantage of pre-

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treating the conductor to improve conductivity and thereby permit a high current density to be transmitted by a mechanical electrical contact downstream of the pretreatment. Withdrawal of this rejection is requested.

Claims 30-34 and 37-41 have been rejected under 35 USC 103 over Colombier et al in combination with Hansson and further in view of Edlund.

Edlund discloses that nickel plating can be tin soldered. However, brazing and soldering are different processes and according to the present specification, the clad alloy is the brazing material and nickel layer enables flux-less brazing, as disclosed at page 7, line 14 through 16.

Thus, Edlund does not disclose the invention as claimed and does not cure the defects of the Colombier et al and Hansson references. Withdrawal of this rejection is requested.

In addition, Claim 14 has been rejected under 35 USC 103 over Colombier et al in combination with Hansson and Claims 42 through 54 have been rejected under 35 USC 103 over Colombier et al in combination with Hansson and Edlund. These references have been discussed in detail above, and Applicants submit that the rejected claims are patentable for the reasons discussed above. Withdrawal of these rejections is requested.

Non-elected claims 15-28 have been cancelled.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,

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